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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/728,392

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Stephen D. Fantone

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EXAMINER

WEBB, CHRISTOPHER G

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 09/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/728,392

Applicant(s)

FANTONE ET AL.

Examiner

Christopher G. Webb

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20040209.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

Claim 13 is objected to because of the following informalities: "...means configured permit said apparatus..." should read, "...means configured to permit said apparatus..." Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. (US 2003/0015662 A1, hereafter Yang) in view of Schofield et al. (US 2002/0167589 A1, hereafter Schofield).

With respect to claim 1, Yang teaches a night vision apparatus comprising: means for positioning the apparatus with a portion of the apparatus adjacent an eye of said user (fig. 1, element 1); a detector mounted on said positioning means (fig. 1, element 3) said detector inherently having a field of view; infrared generation means mounted on said positioning means (fig. 1, element 2) and arranged to direct such radiation into the field of view of said detector; and image generation means mounted

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on said positioning means and arranged to receive an output from said solid state imager and to generate a visible image representative of said output at a position visible to the eye of said user (fig. 1, element 4). Yang does not teach that the detector is a solid-state imager with substantial sensitivity to infrared radiation. Schofield teaches a camera useful for night vision that is sensitive to infrared radiation (paragraph [0066], lines 12-14) and may be a solid-state imager (paragraph [0066], lines 1-3). It would have been obvious at the time of invention to one of ordinary skill in the art to use the camera taught by Schofield as the detector in the apparatus taught by Yang. Solid-state imagers are well known in the art to be a cost effective detection element in night vision systems.

As to claim 2, Yang does not teach that the detector is a CMOS device. Schofield teaches that the camera may be a CMOS device (paragraph [0066], lines 1-3). It would have been obvious at the time of invention to one of ordinary skill in the art to use a CMOS detector as taught by Schofield as noted above with respect to claim 1.

As to claim 3, Yang does not teach that the detector is sensitive to radiation in the range of about 700 nm to about 1000 nm. Schofield teaches a detector that is sensitive to near infrared (paragraph [0066], lines 12-14), understood by those of ordinary skill in the art to contain the range specified by the applicant. It would have been obvious at the time of invention to one of ordinary skill in the art to use a detector as taught by Schofield that is sensitive to radiation in the range of about 700 nm to about 1000 nm. This is the range commonly used in a night vision apparatus to provide a sharp image in low-light conditions.

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As to claim 4, Yang does not teach that the detector is sensitive to radiation in the range of about 400 nm to about 700 nm. Schofield teaches a detector that is sensitive to visible light (paragraph [0066], lines 12-14), understood by those of ordinary skill in the art to contain the range specified by the applicant. It would have been obvious at the time of invention to one of ordinary skill in the art to use a detector as taught by Schofield that is sensitive to radiation in the range of about 400 nm to about 700 nm. As visible light would be representative of the same image that the NIR radiation is showing, and the camera of Schofield is already specified as potentially being sensitive to visible light, the inclusion of the visible range would tend to increase the sharpness and accuracy of the night vision apparatus in low lighting conditions.

As to claim 5, Yang teaches that the infrared radiation generating means includes at least one infrared radiation emitting diode (paragraph [0016], lines 4-5).

As to claim 13, Yang teaches a head mounting means (fig. 5, element 11) configured to permit said apparatus to be worn on a user's head so that a portion of the apparatus (fig. 5, elements 2, 3, and 41) is positioned adjacent one eye of the user and so as not to obstruct the eye of said user remote from said image generation means.

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of Schofield as applied to claim 5 above, and further in view of Brennan et al. (US 4,463,252, hereafter Brennan).

With respect to claim 6, Yang teaches that the infrared generating means includes at least two IR LEDs (paragraph [0016], lines 4-5). Yang does not teach

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different fields of view for the illuminations provided by said LEDs. Brennan teaches an IR LED switch that alternates between a narrow field of view illumination and a wide field of view illumination. It would have been obvious at the time of invention to one of ordinary skill in the art to incorporate Brennan's idea of wide- and narrow-field illumination into the plurality of IR LEDs taught by Yang. Doing such would provide a clear and well-illuminated image for Yang's apparatus, and it would eliminate the need for the switch proposed by Brennan.

As to claim 7, Yang discloses that the detector comprises a lens (paragraph [0017], lines 1-2) and at least three LEDs (fig. 1, element 23). Yang does not teach that the lens focuses energy onto the detector, or that the LEDs are arranged in a circle. It would have been obvious at the time of invention to one of ordinary skill in the art to use the lens to focus energy onto the detector. The lens being identified as part of the image-acquiring unit in conjunction with a camera implies that it would be done this way. Furthermore, it would be obvious to arrange the LEDs into any number of shapes, based on design choice and available space.

Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of Schofield as applied to claim 1 above, and further in view of Lenko et al. (US 4,915, 478, hereafter Lenko).

With respect to claim 8, Yang teaches that the image generation means comprises a LCD. Yang does not teach that the LCD comprises a backlight. The use of backlights for LCDs has long been known in the art, such as one by Lenko. It would

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have been obvious at the time of invention to one of ordinary skill in the art to use a backlight in conjunction with the LCD to enhance image visibility.

As to claim 9, Yang in view of Schofield does not teach that the backlit LCD is placed between the solid-state imager and the user, so that the display is not visible except to the user. It would have been obvious at the time of invention to one of ordinary skill in the art to place the backlit LCD between the imager and the user. This arrangement would allow the user to see the display, prevent the backlight from interfering with the detector, and by the display being visible to only the user, wildlife, etc., would not be alerted to the presence of the user.

As to claim 10, Yang in view of Schofield does not disclose that the backlight is provided by a LED and comprises a diffuser. Lenko teaches the use of LEDs and a diffuser (col. 4, lines 7-12). It would have been obvious at the time of invention to one of ordinary skill in the art to use the LEDs and diffuser as suggested by Lenko in the apparatus of Yang in view of Schofield. The LED and diffuser combination, as noted by Lenko in the cited section, provides uniformity in the light diffusion, which is essential for proper viewing of an image on a LCD screen.

As to claim 11, Yang in view of Schofield does not disclose that the LED emits green light. Lenko teaches the use of green light in the backlight. It would have been obvious at the time of invention to one of ordinary skill in the art to use green light in the apparatus of Yang in view of Schofield. As noted by Lenko in col. 3, lines 39-44, green light is often the best choice for a night vision apparatus.

Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of Schofield and Lenko as applied to claim 8 above, and further in view of Brennan. Yang in view of Schofield and Lenko does not disclose an eyepiece lens being between the LCD and the eye of the user. Brennan teaches a lens assembly in the eyepiece of a night vision apparatus (fig. 9, element 34). It would have been obvious at the time of invention to one of ordinary skill in the art to use the eyepiece lens assembly of Brennan in the apparatus of Yang in view of Schofield and Lenko. The eyepiece lens assembly is useful for focusing the image onto the eye of the user.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of Schofield and Lenko as applied to claim 8 above, and further in view of Shaw et al. (US 6,419,372 B1, hereafter Shaw). Yang in view of Schofield and Lenko does not teach a filter arranged to filter any visible radiation emitted by the backlight. Shaw teaches the use of such a filter in a night vision apparatus (col. 3, lines 16-21). It would have been obvious at the time of invention to one of ordinary skill in the art to use a filter as taught by Shaw in the apparatus of Yang in view of Schofield and Lenko. Filtering out visible radiation emitted by the backlight would prevent the backlight from interfering with the detector and wildlife, etc., would not be alerted to the presence of the user.

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of Schofield as applied to claim 1 above, and further in view of Salapow et al. (US 6,486,473 B2, hereafter Salapow).

With respect to claim 15, Yang in view of Schofield does not teach that the positioning means is configured and arranged so that a user can manipulate the apparatus solely by hand. Salapow teaches an infrared camera that is configured and arranged in that manner (fig.1). It would have been obvious at the time of invention to one of ordinary skill in the art to use the configuration of Salapow with the apparatus suggested by Yang in view of Schofield. The use of this configuration would allow for rapid transfer of the device between multiple users, such as firefighters.

As to claim 16, Yang in view of Schofield does not teach a generally cylindrical shaped housing adapted to be manipulated by hand. Salapow teaches such a housing (fig. 7, element 20). It would have been obvious at the time of invention to one of ordinary skill in the art to use such a housing to facilitate portability and the inclusion of the relevant components.

As to claim 17, Yang in view of Schofield does not teach the attachment of hand grips to said housing to provide enhanced handling and house batteries. Salapow teaches hand grips (fig. 7, elements 610 and 620) attached to said housing. The hand grips inherently provide enhanced handling, and they also house batteries (col. 2, lines 38-40). It would have been obvious at the time of invention to one of ordinary skill in the art to attach said grips for easier transfer of the device between users, as noted above with respect to claim 15. It would also be obvious to house the batteries as part of the hand grip assembly, as this would eliminate the need for further housing.

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Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2004/0136605 A1 also discloses relevant prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher G. Webb whose telephone number is (571) 272-8449. The examiner can normally be reached on 9AM - 5:30PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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